Fronius Gen24 Primo/Symo Inverter Register Map with Integer+SF Inverter Model and storage configured for ROW use

ALIAS	ADDRESS

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40001	40002	2	R	0x03	SID	Well-known value. Uniquely identifies this as a SunSpec Modbus Map	uint32			0x53756e53 ('SunS')

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40003	40003	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model common (1)	uint16			1
40004	40004	1	R	0x03	L	Length of sunspec model common (1)	uint16	Registers		65
40005	40020	16	R	0x03	Mn	Manufacturer	string			Fronius
40021	40036	16	R	0x03	Md	Device	string			e.g. Primo GEN24 6.0 Primo GEN24 10.0 Primo GEN24 10.0 208-240 Primo GEN24 3.0 Primo GEN24 3.6 Primo GEN24 3.8 208-240 Primo GEN24 4.0 Primo GEN24 4.6 Primo GEN24 5.0 Primo GEN24 6.0 208-240 Symo GEN24 10.0 Symo GEN24 3.0 Symo GEN24 4.0 Symo GEN24 5.0 Symo GEN24 6.0 Symo GEN24 8.0
40037	40044	8	R	0x03	Opt	Options	string			not supported
40045	40052	8	R	0x03	Vr	SW version of inverter	string			e.g. 1.8.10-0
40053	40068	16	R	0x03	SN	Serialnumber of the inverter	string			e.g. 12345678
40069	40069	1	R	0x03	DA	Modbus Device Address	uint16			1 - 247

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40070	40070	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model inverter (10x)	uint16			101, 103
40071	40071	1	R	0x03	L	Length of sunspec model inverter (10x)	uint16	Registers		50
40072	40072	1	R	0x03	A	AC Current	uint16	A	A_SF	
40073	40073	1	R	0x03	AphA	Phase A Current	uint16	A	A_SF	
40074	40074	1	R	0x03	AphB	Phase B Current	uint16	A	A_SF	This data-point is supported/not-supported depending on the grid connection.
40075	40075	1	R	0x03	AphC	Phase C Current	uint16	A	A_SF	This data-point is supported/not-supported depending on the grid connection.
40076	40076	1	R	0x03	A_SF		sunssf			auto-scaled on A, AphA, AphB, AphC
40077	40077	1	R	0x03	PPVphAB	Phase Voltage AB	uint16	V	V_SF	This data-point is supported/not-supported depending on the grid connection.
40078	40078	1	R	0x03	PPVphBC	Phase Voltage BC	uint16	V	V_SF	This data-point is supported/not-supported depending on the grid connection.
40079	40079	1	R	0x03	PPVphCA	Phase Voltage CA	uint16	V	V_SF	This data-point is supported/not-supported depending on the grid connection.
40080	40080	1	R	0x03	PhVphA	Phase Voltage AN	uint16	V	V_SF	
40081	40081	1	R	0x03	PhVphB	Phase Voltage BN	uint16	V	V_SF	This data-point is supported/not-supported depending on the grid connection.
40082	40082	1	R	0x03	PhVphC	Phase Voltage CN	uint16	V	V_SF	This data-point is supported/not-supported depending on the grid connection.
40083	40083	1	R	0x03	V_SF		sunssf			-1
PV_BAT_P 40083	40084	40084	1	R	0x03	W	AC Power	int16	W	W_SF	
PV_BAT_P_SF 40084	40085	40085	1	R	0x03	W_SF		sunssf			auto-scaled on W
40086	40086	1	R	0x03	Hz	Line Frequency	uint16	Hz	Hz_SF	
40087	40087	1	R	0x03	Hz_SF		sunssf			-2
40088	40088	1	R	0x03	VA	AC Apparent Power	int16	VA	VA_SF	
40089	40089	1	R	0x03	VA_SF		sunssf			auto-scaled on VA
40090	40090	1	R	0x03	VAr	AC Reactive Power	int16	var	VAr_SF	
40091	40091	1	R	0x03	VAr_SF		sunssf			auto-scaled on VAr
40092	40092	1	R	0x03	PF	AC Power Factor	int16	Pct	PF_SF	
40093	40093	1	R	0x03	PF_SF		sunssf			-1
40094	40095	2	R	0x03	WH	AC Energy	acc32	Wh	WH_SF	
40096	40096	1	R	0x03	WH_SF		sunssf			auto-scaled
40097	40097	1	R	0x03	DCA	DC Current	uint16	A	DCA_SF	not supported if the inverter has multiple DC inputs current of DC-strings can be found in MPPT model 160
40098	40098	1	R	0x03	DCA_SF		sunssf			not supported
40099	40099	1	R	0x03	DCV	DC Voltage	uint16	V	DCV_SF	not supported if the inverter has multiple DC inputs current of DC-strings can be found in MPPT model 160
40100	40100	1	R	0x03	DCV_SF		sunssf			not supported

40101	40101	1	R	0x03	DCW	DC Power	int16	W	DCW_SF	
40102	40102	1	R	0x03	DCW_SF		sunssf			auto-scaled on DCW
40103	40103	1	R	0x03	TmpCab	Cabinet Temperature	int16	C	Tmp_SF	
40104	40104	1	R	0x03	TmpSnk	Heat Sink Temperature	int16	C	Tmp_SF	not supported
40105	40105	1	R	0x03	TmpTrns	Transformer Temperature	int16	C	Tmp_SF	not supported
40106	40106	1	R	0x03	TmpOt	Other Temperature	int16	C	Tmp_SF	not supported
40107	40107	1	R	0x03	Tmp_SF		sunssf			-1
40108	40108	1	R	0x03	St	Enumerated value. Operating state	enum16			see all states in our Modbus TCP & RTU user manual under SunSpec Operating Codes
40109	40109	1	R	0x03	StVnd	Vendor specific operating state code	enum16			same as register "St"
40110	40111	2	R	0x03	Evt1	Bitmask value. Event fields	bitfield32			
40112	40113	2	R	0x03	Evt2	Reserved for future use	bitfield32			
40114	40115	2	R	0x03	EvtVnd1	Vendor defined events	bitfield32			"Customer" event severity level bitfield bit 0 -> Error bit 1 -> Warning bit 2 -> Info This bitfield is composed as a superposition for the severity-levels of all currently active events on view level "Customer". If a bit is set it means that currently there is at least one active event with this severity level. Multiple bits can be set at once indicating several active events with different severity-levels.
40116	40117	2	R	0x03	EvtVnd2	Vendor defined events	bitfield32			"Technician" event severity level bitfield bit 0 -> Error bit 1 -> Warning bit 2 -> Info This bitfield is composed as a superposition for the severity-levels of all currently active events on view level "Technician" If a bit is set it means that currently there is at least one active event with this severity level. Multiple bits can be set at once indicating several active events with different severity-levels. View level "Technician" is a superset of view level "Customer". This means that all events visible for view level "Customer" are also visible for view level "Technician".
40118	40119	2	R	0x03	EvtVnd3	Vendor defined events	bitfield32			not supported
40120	40121	2	R	0x03	EvtVnd4	Vendor defined events	bitfield32			not supported

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40122	40122	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model nameplate (120)	uint16			120
40123	40123	1	R	0x03	L	Length of sunspec model nameplate (120)	uint16	Registers		26
40124	40124	1	R	0x03	DERTyp	Type of DER device. Default value is 4 to indicate PV device.	enum16			82 (PV_STOR)
40125	40125	1	R	0x03	WRtg	Continuous power output capability of the inverter.	uint16	W	WRtg_SF	
40126	40126	1	R	0x03	WRtg_SF	Scale factor	sunssf			1
40127	40127	1	R	0x03	VARtg	Continuous Volt-Ampere capability of the inverter.	uint16	VA	VARtg_SF	
40128	40128	1	R	0x03	VARtg_SF	Scale factor	sunssf			1
40129	40129	1	R	0x03	VArRtgQ1	Continuous VAR capability of the inverter in quadrant 1.	int16	var	VArRtg_SF	
40130	40130	1	R	0x03	VArRtgQ2	Continuous VAR capability of the inverter in quadrant 2.	int16	var	VArRtg_SF	
40131	40131	1	R	0x03	VArRtgQ3	Continuous VAR capability of the inverter in quadrant 3.	int16	var	VArRtg_SF	
40132	40132	1	R	0x03	VArRtgQ4	Continuous VAR capability of the inverter in quadrant 4.	int16	var	VArRtg_SF	
40133	40133	1	R	0x03	VArRtg_SF	Scale factor	sunssf			1
40134	40134	1	R	0x03	ARtg	Maximum RMS AC current level capability of the inverter.	uint16	A	ARtg_SF	
40135	40135	1	R	0x03	ARtg_SF	Scale factor	sunssf			-2
40136	40136	1	R	0x03	PFRtgQ1	Minimum power factor capability of the inverter in quadrant 1.	int16	cos()	PFRtg_SF	from -1.0 to 0
40137	40137	1	R	0x03	PFRtgQ2	Minimum power factor capability of the inverter in quadrant 2.	int16	cos()	PFRtg_SF	from 0 to 1.0
40138	40138	1	R	0x03	PFRtgQ3	Minimum power factor capability of the inverter in quadrant 3.	int16	cos()	PFRtg_SF	from -1.0 to 0
40139	40139	1	R	0x03	PFRtgQ4	Minimum power factor capability of the inverter in quadrant 4.	int16	cos()	PFRtg_SF	from 0 to 1.0
40140	40140	1	R	0x03	PFRtg_SF	Scale factor	sunssf			-3
40141	40141	1	R	0x03	WHRtg	Nominal energy rating of storage device.	uint16	Wh	WHRtg_SF	
40142	40142	1	R	0x03	WHRtg_SF	Scale factor	sunssf			

40143	40143	1	R	0x03	AhrRtg	The usable capacity of the battery. Maximum charge minus minimum charge from a technology capability perspective (Amp-hour capacity rating).	uint16	AH	AhrRtg_SF	not supported
40144	40144	1	R	0x03	AhrRtg_SF	Scale factor for amp-hour rating.	sunssf			not supported
40145	40145	1	R	0x03	MaxChaRte	Maximum rate of energy transfer into the storage device.	uint16	W	MaxChaRte_SF	
40146	40146	1	R	0x03	MaxChaRte_SF	Scale factor	sunssf			0
40147	40147	1	R	0x03	MaxDisChaRte	Maximum rate of energy transfer out of the storage device.	uint16	W	MaxDisChaRte_SF	
40148	40148	1	R	0x03	MaxDisChaRte_SF	Scale factor	sunssf			0
40149	40149	1	R	0x03	Pad	Pad register.	pad			

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40150	40150	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model settings (121)	uint16			121
40151	40151	1	R	0x03	L	Length of sunspec model settings (121)	uint16	Registers		30
40152	40152	1	R	0x03	WMax	Setting for maximum power output. Default to WRtg.	uint16	W	WMax_SF	
40153	40153	1	R	0x03	VRef	Voltage at the PCC.	uint16	V	VRef_SF	
40154	40154	1	R	0x03	VRefOfs	Offset from PCC to inverter.	int16	V	VRefOfs_SF	0.0
40155	40155	1	R	0x03	VMax	Setpoint for maximum voltage.	uint16	V	VMinMax_SF	not supported
40156	40156	1	R	0x03	VMin	Setpoint for minimum voltage.	uint16	V	VMinMax_SF	not supported
40157	40157	1	R	0x03	VAMax	Setpoint for maximum apparent power. Default to VARtg.	uint16	VA	VAMax_SF	same as nameplate.VARtg
40158	40158	1	R	0x03	VArMaxQ1	Setting for maximum reactive power in quadrant 1. Default to VArRtgQ1.	int16	var	VArMax_SF	same as nameplate.VArRtgQ1
40159	40159	1	R	0x03	VArMaxQ2	Setting for maximum reactive power in quadrant 2. Default to VArRtgQ2.	int16	var	VArMax_SF	same as nameplate.VArRtgQ2
40160	40160	1	R	0x03	VArMaxQ3	Setting for maximum reactive power in quadrant 3. Default to VArRtgQ3.	int16	var	VArMax_SF	same as nameplate.VArRtgQ3
40161	40161	1	R	0x03	VArMaxQ4	Setting for maximum reactive power in quadrant 4. Default to VArRtgQ4.	int16	var	VArMax_SF	same as nameplate.VArRtgQ4
40162	40162	1	R	0x03	WGra	Default ramp rate of change of active power due to command or internal action.	uint16	% WMax/sec	WGra_SF	not supported
40163	40163	1	R	0x03	PFMinQ1	Setpoint for minimum power factor value in quadrant 1. Default to PFRtgQ1.	int16	cos()	PFMin_SF	same as nameplate.PFRtgQ1
40164	40164	1	R	0x03	PFMinQ2	Setpoint for minimum power factor value in quadrant 2. Default to PFRtgQ2.	int16	cos()	PFMin_SF	same as nameplate.PFRtgQ2
40165	40165	1	R	0x03	PFMinQ3	Setpoint for minimum power factor value in quadrant 3. Default to PFRtgQ3.	int16	cos()	PFMin_SF	same as nameplate.PFRtgQ3
40166	40166	1	R	0x03	PFMinQ4	Setpoint for minimum power factor value in quadrant 4. Default to PFRtgQ4.	int16	cos()	PFMin_SF	same as nameplate.PFRtgQ4
40167	40167	1	R	0x03	VArAct	VAR action on change between charging and discharging: 1=switch 2=maintain VAR characterization.	enum16			not supported
40168	40168	1	R	0x03	ClcTotVA	Calculation method for total apparent power. 1=vector 2=arithmetic.	enum16			not supported
40169	40169	1	R	0x03	MaxRmpRte	Setpoint for maximum ramp rate as percentage of nominal maximum ramp rate. This setting will limit the rate that watts delivery to the grid can increase or decrease in response to intermittent PV generation.	uint16	% WGra	MaxRmpRte_SF	not supported
40170	40170	1	R	0x03	ECPNomHz	Setpoint for nominal frequency at the ECP.	uint16	Hz	ECPNomHz_SF	not supported
40171	40171	1	R	0x03	ConnPh	Identity of connected phase for single phase inverters. A=1 B=2 C=3.	enum16			not supported
40172	40172	1	R	0x03	WMax_SF	Scale factor for real power.	sunssf			1
40173	40173	1	R	0x03	VRef_SF	Scale factor for voltage at the PCC.	sunssf			0
40174	40174	1	R	0x03	VRefOfs_SF	Scale factor for offset voltage.	sunssf			0
40175	40175	1	R	0x03	VMinMax_SF	Scale factor for min/max voltages.	sunssf			not supported
40176	40176	1	R	0x03	VAMax_SF	Scale factor for apparent power.	sunssf			1
40177	40177	1	R	0x03	VArMax_SF	Scale factor for reactive power.	sunssf			1
40178	40178	1	R	0x03	WGra_SF	Scale factor for default ramp rate.	sunssf			not supported
40179	40179	1	R	0x03	PFMin_SF	Scale factor for minimum power factor.	sunssf			-3
40180	40180	1	R	0x03	MaxRmpRte_SF	Scale factor for maximum ramp percentage.	sunssf			not supported
40181	40181	1	R	0x03	ECPNomHz_SF	Scale factor for nominal frequency.	sunssf			not supported

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40182	40182	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model status (122)	uint16			122
40183	40183	1	R	0x03	L	Length of sunspec model status (122)	uint16	Registers		44
40184	40184	1	R	0x03	PVConn	PV inverter present/available status. Enumerated value.	bitfield16			Bit 0: Connected Bit 1: Available Bit 2: Operating
40185	40185	1	R	0x03	StorConn	Storage inverter present/available status. Enumerated value.	bitfield16			Bit 0: Connected Bit 1: Available Bit 2: Operating
40186	40186	1	R	0x03	ECPConn	ECP connection status: disconnected=0 connected=1.	bitfield16			Bit 0: Connected
40187	40190	4	R	0x03	ActWh	AC lifetime active (real) energy output.	acc64	Wh		
40191	40194	4	R	0x03	ActVAh	AC lifetime apparent energy output.	acc64	VAh		not supported

40195	40198	4	R	0x03	ActVArhQ1	AC lifetime reactive energy output in quadrant 1.	acc64	varh		not supported
40199	40202	4	R	0x03	ActVArhQ2	AC lifetime reactive energy output in quadrant 2.	acc64	varh		not supported
40203	40206	4	R	0x03	ActVArhQ3	AC lifetime negative energy output in quadrant 3.	acc64	varh		not supported
40207	40210	4	R	0x03	ActVArhQ4	AC lifetime reactive energy output in quadrant 4.	acc64	varh		not supported
40211	40211	1	R	0x03	VArAval	Amount of VARs available without impacting watts output.	int16	var	VArAval_SF	not supported
40212	40212	1	R	0x03	VArAval_SF	Scale factor for available VARs.	sunssf			not supported
40213	40213	1	R	0x03	WAval	Amount of Watts available.	uint16	var	WAval_SF	not supported
40214	40214	1	R	0x03	WAval_SF	Scale factor for available Watts.	sunssf			not supported
40215	40216	2	R	0x03	StSetLimMsk	Bit Mask indicating setpoint limit(s) reached.	bitfield32			not supported
40217	40218	2	R	0x03	StActCtl	Bit Mask indicating which inverter controls are currently active.	bitfield32			bits are set according to enabled controls in immediate controls model 123 Bit 0: FixedW Bit 1: FixedVAR Bit 2: FixedPF
40219	40222	4	R	0x03	TmSrc	Source of time synchronization.	string			RTC
40223	40224	2	R	0x03	Tms	Seconds since 01-01-2000 00:00 UTC	uint32	Secs		
40225	40225	1	R	0x03	RtSt	Bit Mask indicating active ride-through status.	bitfield16			not supported
40226	40226	1	R	0x03	Ris	Isolation resistance.	uint16	ohms	Ris_SF	
40227	40227	1	R	0x03	Ris_SF	Scale factor for isolation resistance.	sunssf			auto-scaled on Ris

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40228	40228	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model controls (123)	uint16			123
40229	40229	1	R	0x03	L	Length of sunspec model controls (123)	uint16	Registers		24
40230	40230	1	RW	0x03 0x06 0x10	Conn_WinTms	Time window for connect/disconnect.	uint16	Secs		0 - 300
40231	40231	1	RW	0x03 0x06 0x10	Conn_RvrtTms	Timeout period for connect/disconnect.	uint16	Secs		0 - 28800
40232	40232	1	RW	0x03 0x06 0x10	Conn	Enumerated valued. Connection control.	enum16			0: Disconnected 1: Connected
40233	40233	1	RW	0x03 0x06 0x10	WMaxLimPct	Set power output to specified level.	uint16	% WMax	WMaxLimPct_SF	0% - 100%
40234	40234	1	RW	0x03 0x06 0x10	WMaxLimPct_WinTms	Time window for power limit change.	uint16	Secs		0 - 300
40235	40235	1	RW	0x03 0x06 0x10	WMaxLimPct_RvrtTms	Timeout period for power limit.	uint16	Secs		0 - 28800
40236	40236	1	RW	0x03 0x06 0x10	WMaxLimPct_RmpTms	Ramp time for moving from current setpoint to new setpoint.	uint16	Secs		0 - 65534
40237	40237	1	RW	0x03 0x06 0x10	WMaxLim_Ena	Enumerated valued. Throttle enable/disable control.	enum16			0: Disabled 1: Enabled
40238	40238	1	RW	0x03 0x06 0x10	OutPFSet	Set power factor to specific value - cosine of angle.	int16	cos()	OutPFSet_SF	from -1.0 to nameplate.PFRtgQ1 and from nameplate.PFRtgQ4 to +1.0
40239	40239	1	RW	0x03 0x06 0x10	OutPFSet_WinTms	Time window for power factor change.	uint16	Secs		0 - 300
40240	40240	1	RW	0x03 0x06 0x10	OutPFSet_RvrtTms	Timeout period for power factor.	uint16	Secs		0 - 28800
40241	40241	1	RW	0x03 0x06 0x10	OutPFSet_RmpTms	Ramp time for moving from current setpoint to new setpoint.	uint16	Secs		0 - 65534
40242	40242	1	RW	0x03 0x06 0x10	OutPFSet_Ena	Enumerated valued. Fixed power factor enable/disable control.	enum16			0: Disabled 1: Enabled
40243	40243	1	R	0x03	VArWMaxPct	Reactive power in percent of WMax.	int16	% WMax	VArPct_SF	not supported
40244	40244	1	RW	0x03 0x06 0x10	VArMaxPct	Reactive power in percent of VArMax.	int16	% VArMax	VArPct_SF	-100% - +100%
40245	40245	1	R	0x03	VArAvalPct	Reactive power in percent of VArAval.	int16	% VArAval	VArPct_SF	not supported
40246	40246	1	RW	0x03 0x06 0x10	VArPct_WinTms	Time window for VAR limit change.	uint16	Secs		0 - 300
40247	40247	1	RW	0x03 0x06 0x10	VArPct_RvrtTms	Timeout period for VAR limit.	uint16	Secs		0 - 28800
40248	40248	1	RW	0x03 0x06 0x10	VArPct_RmpTms	Ramp time for moving from current setpoint to new setpoint.	uint16	Secs		0 - 65534
40249	40249	1	R	0x03	VArPct_Mod	Enumerated value. VAR percent limit mode.	enum16			2: VAR limit as a % of VArMax
40250	40250	1	RW	0x03 0x06 0x10	VArPct_Ena	Enumerated valued. Percent limit VAr enable/disable control.	enum16			0: Disabled 1: Enabled
40251	40251	1	R	0x03	WMaxLimPct_SF	Scale factor for power output percent.	sunssf			-2
40252	40252	1	R	0x03	OutPFSet_SF	Scale factor for power factor.	sunssf			-3
40253	40253	1	R	0x03	VArPct_SF	Scale factor for reactive power percent.	sunssf			0

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40254	40254	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model mppt (160)	uint16			160
40255	40255	1	R	0x03	L	Length of sunspec model mppt (160)	uint16	Registers		88
40256	40256	1	R	0x03	DCA_SF	Current Scale Factor	sunssf			auto-scaled on DCA 1-N
40257	40257	1	R	0x03	DCV_SF	Voltage Scale Factor	sunssf			auto-scaled on DCV 1-N

BAT_P_SF	**40257**	40258	40258	1	R	0x03	DCW_SF	Power Scale Factor	sunssf			auto-scaled on DCW 1-N
		40259	40259	1	R	0x03	DCWH_SF	Energy Scale Factor	sunssf			auto-scaled on DCWH 1-N
		40260	40261	2	R	0x03	Evt	Global Events	bitfield32			not supported
		40262	40262	1	R	0x03	N	Number of Modules	count			4
		40263	40263	1	R	0x03	TmsPer	Timestamp Period	uint16			not supported
		40264	40264	1	R	0x03	module/1/ID	Input ID	uint16			1
		40265	40272	8	R	0x03	module/1/IDStr	Input ID Sting	string			'MPPT 1'
		40273	40273	1	R	0x03	module/1/DCA	DC Current	uint16	A	DCA_SF	
		40274	40274	1	R	0x03	module/1/DCV	DC Voltage	uint16	V	DCV_SF	
		40275	40275	1	R	0x03	module/1/DCW	DC Power	uint16	W	DCW_SF	
		40276	40277	2	R	0x03	module/1/DCWH	Lifetime Energy	acc32	Wh	DCWH_SF	
		40278	40279	2	R	0x03	module/1/Tms	Timestamp	uint32	Secs		number of seconds since Jan 1st 2000 00:00 am
		40280	40280	1	R	0x03	module/1/Tmp	Temperature	int16	C		not supported
		40281	40281	1	R	0x03	module/1/DCSt	Operating State	enum16			not supported
		40282	40283	2	R	0x03	module/1/DCEvt	Module Events	bitfield32			not supported
		40284	40284	1	R	0x03	module/2/ID	Input ID	uint16			2
		40285	40292	8	R	0x03	module/2/IDStr	Input ID Sting	string			'MPPT 2'
		40293	40293	1	R	0x03	module/2/DCA	DC Current	uint16	A	DCA_SF	
		40294	40294	1	R	0x03	module/2/DCV	DC Voltage	uint16	V	DCV_SF	
		40295	40295	1	R	0x03	module/2/DCW	DC Power	uint16	W	DCW_SF	
		40296	40297	2	R	0x03	module/2/DCWH	Lifetime Energy	acc32	Wh	DCWH_SF	
		40298	40299	2	R	0x03	module/2/Tms	Timestamp	uint32	Secs		number of seconds since Jan 1st 2000 00:00 am
		40300	40300	1	R	0x03	module/2/Tmp	Temperature	int16	C		not supported
		40301	40301	1	R	0x03	module/2/DCSt	Operating State	enum16			not supported
		40302	40303	2	R	0x03	module/2/DCEvt	Module Events	bitfield32			not supported
		40304	40304	1	R	0x03	module/3/ID	Input ID	uint16			3
		40305	40312	8	R	0x03	module/3/IDStr	Input ID Sting	string			'StCha 3'
		40313	40313	1	R	0x03	module/3/DCA	DC Current	uint16	A	DCA_SF	When the battery is discharged the data-points of the charge input are set to 0
		40314	40314	1	R	0x03	module/3/DCV	DC Voltage	uint16	V	DCV_SF	up to software version 1.30: When the battery is discharged the data-points of the charge input are set to 0 since software version 1.31: Voltage of the inverter's battery port (regardless if the battery is currently charging or discharging)
BAT_P_C	**40314**	40315	40315	1	R	0x03	module/3/DCW	DC Power	uint16	W	DCW_SF	When the battery is discharged the data-points of the charge input are set to 0
		40316	40317	2	R	0x03	module/3/DCWH	Lifetime Energy	acc32	Wh	DCWH_SF	up to software version 1.30: When the battery is discharged the data-points of the charge input are set to 0 since software version 1.31: Charge energy counter of the inverter's battery port (regardless if the battery is currently charging or discharging)
		40318	40319	2	R	0x03	module/3/Tms	Timestamp	uint32	Secs		number of seconds since Jan 1st 2000 00:00 am
		40320	40320	1	R	0x03	module/3/Tmp	Temperature	int16	C		not supported
		40321	40321	1	R	0x03	module/3/DCSt	Operating State	enum16			not supported
		40322	40323	2	R	0x03	module/3/DCEvt	Module Events	bitfield32			not supported
		40324	40324	1	R	0x03	module/4/ID	Input ID	uint16			4
		40325	40332	8	R	0x03	module/4/IDStr	Input ID Sting	string			'StDisCha 4'
		40333	40333	1	R	0x03	module/4/DCA	DC Current	uint16	A	DCA_SF	When the battery is charged the data-points of the discharge input are set to 0
		40334	40334	1	R	0x03	module/4/DCV	DC Voltage	uint16	V	DCV_SF	up to software version 1.30: When the battery is charged the data-points of the discharge input are set to 0 since software version 1.31: Voltage of the inverter's battery port (regardless if the battery is currently charging or discharging)
BAT_P_D	**40334**	40335	40335	1	R	0x03	module/4/DCW	DC Power	uint16	W	DCW_SF	When the battery is charged the data-points of the discharge input are set to 0
		40336	40337	2	R	0x03	module/4/DCWH	Lifetime Energy	acc32	Wh	DCWH_SF	up to software version 1.30: When the battery is charged the data-points of the discharge input are set to 0 since software version 1.31: Discharge energy counter of the inverter's battery port (regardless if the battery is currently charging or discharging)
		40338	40339	2	R	0x03	module/4/Tms	Timestamp	uint32	Secs		number of seconds since Jan 1st 2000 00:00 am
		40340	40340	1	R	0x03	module/4/Tmp	Temperature	int16	C		not supported
		40341	40341	1	R	0x03	module/4/DCSt	Operating State	enum16			not supported
		40342	40343	2	R	0x03	module/4/DCEvt	Module Events	bitfield32			not supported

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40344	40344	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model storage (124)	uint16			124

		40345	40345	1	R	0x03	L	Length of sunspec model storage (124)	uint16	Registers		24
		40346	40346	1	R	0x03	WChaMax	Setpoint for maximum charge. Additional Fronius description: Reference Value for maximum Charge and Discharge. Multiply this value by InWRte to define maximum charging and OutWRte to define maximum discharging. Every rate between this two limits is allowed. The inverter is not fully capable of transferring power as reported by this reference value. Note that InWRte and OutWRte can be negative to define ranges for charging and discharging only	uint16	W	WChaMax_SF	
		40347	40347	1	R	0x03	WChaGra	Setpoint for maximum charging rate. Default is MaxChaRte.	uint16	% WChaMax/sec	WChaDisChaGra_SF	100%
		40348	40348	1	R	0x03	WDisChaGra	Setpoint for maximum discharge rate. Default is MaxDisChaRte.	uint16	% WChaMax/sec	WChaDisChaGra_SF	100%
		40349	40349	1	RW	0x03 0x06 0x10	StorCtl_Mod	Activate hold/discharge/charge storage control mode. Bitfield value. Additional Fronius description: Active hold/discharge/charge storage control mode. Set the charge field to enable charging and the discharge field to enable discharging.	bitfield16			bit 0: CHARGE bit 1: DiSCHARGE
		40350	40350	1	RW	0x03 0x06 0x10	VAChaMax	Setpoint for maximum charging VA.	uint16	VA	VAChaMax_SF	
		40351	40351	1	RW	0x03 0x06 0x10	MinRsvPct	Setpoint for minimum reserve for storage as a percentage of the nominal maximum storage.	uint16	% WChaMax	MinRsvPct_SF	
SOC	**40351**	40352	40352	1	R	0x03	ChaState	Currently available energy as a percent of the capacity rating.	uint16	% AhrRtg	ChaState_SF	
		40353	40353	1	R	0x03	StorAval	State of charge (ChaState) minus storage reserve (MinRsvPct) times capacity rating (AhrRtg).	uint16	AH	StorAval_SF	not supported
		40354	40354	1	R	0x03	InBatV	Internal battery voltage.	uint16	V	InBatV_SF	not supported
		40355	40355	1	R	0x03	ChaSt	Charge status of storage device. Enumerated value.	enum16			1: OFF 2: EMPTY 3: DISCHAGING 4: CHARGING 5: FULL 6: HOLDING 7: TESTING The status TESTING is used during battery calibration or service charge.
		40356	40356	1	RW	0x03 0x06 0x10	OutWRte	Percent of max discharge rate. Additional Fronius description: Defines maximum Discharge rate. If not used than the default is 100 and WChaMax defines max. Discharge rate. See WChaMax for details	int16	% WDisChaMax	InOutWRte_SF	valid range -100.00% - +100.00% Please note that this register has a scale factor in Register InOutWRte_SF, so for InOutWRte_SF = -2 the valid range in raw values is from -10000 to 10000. Please be aware that setting an invalid power window will result in a modbus exception 3 (ILLEGAL DATA VALUE). Invalid power windows are all windows where condition: ((StorCtl_Mod == 3) AND ((-1) * InWRtg > OutWRtg)) evaluates to true. This can happen for example if two negative values are written into InWRtg and OutWRtg and both limits are activated by StorCtl_Mod = 3.
		40357	40357	1	RW	0x03 0x06 0x10	InWRte	Percent of max charging rate. Additional Fronius description: Defines maximum Charge rate. If not used than the default is 100 and WChaMax defines max. Charge rate. See WChaMax for details	int16	% WChaMax	InOutWRte_SF	valid range -100.00% - +100.00% Please note that this register has a scale factor in Register InOutWRte_SF, so for InOutWRte_SF = -2 the valid range in raw values is from -10000 to 10000. Please be aware that setting an invalid power window will result in a modbus exception 3 (ILLEGAL DATA VALUE). Invalid power windows are all windows where condition: ((StorCtl_Mod == 3) AND ((-1) * InWRtg > OutWRtg)) evaluates to true. This can happen for example if two negative values are written into InWRtg and OutWRtg and both limits are activated by StorCtl_Mod = 3.
		40358	40358	1	R	0x03	InOutWRte_WinTms	Time window for charge/discharge rate change.	uint16	Secs		not supported
		40359	40359	1	RW	0x03 0x06 0x10	InOutWRte_RvrtTms	Timeout period for charge/discharge rate.	uint16	Secs		0 - 28800
		40360	40360	1	R	0x03	InOutWRte_RmpTms	Ramp time for moving from current setpoint to new setpoint.	uint16	Secs		not supported
		40361	40361	1	RW	0x03 0x06 0x10	ChaGriSet		enum16			0: PV (Charging from grid disabled) 1: GRID (Charging from grid enabled)
		40362	40362	1	R	0x03	WChaMax_SF	Scale factor for maximum charge.	sunssf			0
		40363	40363	1	R	0x03	WChaDisChaGra_SF	Scale factor for maximum charge and discharge rate.	sunssf			0
		40364	40364	1	R	0x03	VAChaMax_SF	Scale factor for maximum charging VA.	sunssf			not supported
		40365	40365	1	R	0x03	MinRsvPct_SF	Scale factor for minimum reserve percentage.	sunssf			-2

SOC_SF **40365**

40366	40366	1	R	0x03	ChaState_SF	Scale factor for available energy percent.	sunssf			-2
40367	40367	1	R	0x03	StorAval_SF	Scale factor for state of charge.	sunssf			not supported
40368	40368	1	R	0x03	InBatV_SF	Scale factor for battery voltage.	sunssf			not supported
40369	40369	1	R	0x03	InOutWRte_SF	Scale factor for percent charge/discharge rate.	sunssf			-2

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40370	40370	1	R	0x03	ID	Identifies this as End block	uint16			0xFFFF
40371	40371	1	R	0x03	L	Length of model block	uint16			0x0

Smart Meter Register Map with Integer+SF AC-Meter Model

ALIAS	ADDRESS	Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
		40001	40002	2	R	0x03	SID	Well-known value. Uniquely identifies this as a SunSpec Modbus Map	uint32			0x53756e53 ('SunS')

Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
40003	40003	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model common (1)	uint16			1
40004	40004	1	R	0x03	L	Length of sunspec model common (1)	uint16	Registers		65
40005	40020	16	R	0x03	Mn	Smart Meter Manufacturer	string			e.g. "Fronius"
40021	40036	16	R	0x03	Md	Smart Meter Model	string			e.g. "Smart Meter 63A"
40037	40044	8	R	0x03	Opt	Smart Meter Name	string			e.g. "<primary>"
40045	40052	8	R	0x03	Vr	SW version of	string			e.g. "2.9"
40053	40068	16	R	0x03	SN	Smart Meter Serialnumber	string			e.g. "18370117"
40069	40069	1	R	0x03	DA	Modbus Device Address	uint16			1 - 247

ALIAS	ADDRESS	Start	End	Size	R/W	Functioncodes	Name	Description	Type	Units	Scale Factor	Rangeof values
		40070	40070	1	R	0x03	ID	Well-known value. Uniquely identifies this as a sunspec model ac_meter (20x)	uint16			201: Single Phase (AN or AB), 202: Split Single Phase (ABN), 203: WYE-Connect Three Phase (ABCN), 204: Delta-Connect Three Phase (ABC)
		40071	40071	1	R	0x03	L	Length of sunspec model ac_meter (20x)	uint16	Registers		105
		40072	40072	1	R	0x03	A	Total AC Current	int16	A	A_SF	
		40073	40073	1	R	0x03	AphA	Phase A Current	int16	A	A_SF	
		40074	40074	1	R	0x03	AphB	Phase B Current	int16	A	A_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40075	40075	1	R	0x03	AphC	Phase C Current	int16	A	A_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40076	40076	1	R	0x03	A_SF	Current scale factor	sunssf			auto-scaled on A, AphA, AphB and AphC
		40077	40077	1	R	0x03	PhV	Line to Neutral AC Voltage (average of active phases)	int16	V	V_SF	
		40078	40078	1	R	0x03	PhVphA	Phase Voltage AN	int16	V	V_SF	
		40079	40079	1	R	0x03	PhVphB	Phase Voltage BN	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40080	40080	1	R	0x03	PhVphC	Phase Voltage CN	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40081	40081	1	R	0x03	PPV	Line to Line AC Voltage (average of active phases)	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40082	40082	1	R	0x03	PhVphAB	Phase Voltage AB	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40083	40083	1	R	0x03	PhVphBC	Phase Voltage BC	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40084	40084	1	R	0x03	PhVphCA	Phase Voltage CA	int16	V	V_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40085	40085	1	R	0x03	V_SF	Voltage scale factor	sunssf			-1
		40086	40086	1	R	0x03	Hz	Frequency	int16	Hz	Hz_SF	
		40087	40087	1	R	0x03	Hz_SF	Frequency scale factor	sunssf			-2
G_P	40087	40088	40088	1	R	0x03	W	Total Real Power	int16	W	W_SF	
		40089	40089	1	R	0x03	WphA	Watts phase A	int16	W	W_SF	
		40090	40090	1	R	0x03	WphB	Watts phase B	int16	W	W_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40091	40091	1	R	0x03	WphC	Watts phase C	int16	W	W_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
G_P_SF	40091	40092	40092	1	R	0x03	W_SF	Real Power scale factor	sunssf			auto-scaled on W, WphA, WphB and WphC
		40093	40093	1	R	0x03	VA	AC Apparent Power	int16	VA	VA_SF	
		40094	40094	1	R	0x03	VAphA	VA phase A	int16	VA	VA_SF	
		40095	40095	1	R	0x03	VAphB	VA phase B	int16	VA	VA_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40096	40096	1	R	0x03	VAphC	VA phase C	int16	VA	VA_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40097	40097	1	R	0x03	VA_SF	Apparent Power scale factor	sunssf			auto-scaled on VA, VAphA, VAphB and VAphC
		40098	40098	1	R	0x03	VAR	Reactive Power	int16	var	VAR_SF	

		40099	40099	1	R	0x03	VARphA	VAR phase A	int16	var	VAR_SF	
		40100	40100	1	R	0x03	VARphB	VAR phase B	int16	var	VAR_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40101	40101	1	R	0x03	VARphC	VAR phase C	int16	var	VAR_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40102	40102	1	R	0x03	VAR_SF	Reactive Power scale factor	sunssf			auto-scaled on VAR, VARphA, VARphB and VARphC
		40103	40103	1	R	0x03	PF	Power Factor	int16	Pct	PF_SF	
		40104	40104	1	R	0x03	PFphA	PF phase A	int16	Pct	PF_SF	
		40105	40105	1	R	0x03	PFphB	PF phase B	int16	Pct	PF_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40106	40106	1	R	0x03	PFphC	PF phase C	int16	Pct	PF_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40107	40107	1	R	0x03	PF_SF	Power Factor scale factor	sunssf			-1
G_E_E	**40107**	40108	40109	2	R	0x03	TotWhExp	Total Real Energy Exported	acc32	Wh	TotWh_SF	
		40110	40111	2	R	0x03	TotWhExpPhA	Total Watt-hours Exported phase A	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40112	40113	2	R	0x03	TotWhExpPhB	Total Watt-hours Exported phase B	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40114	40115	2	R	0x03	TotWhExpPhC	Total Watt-hours Exported phase C	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
G_E_I	**40115**	40116	40117	2	R	0x03	TotWhImp	Total Real Energy Imported	acc32	Wh	TotWh_SF	
		40118	40119	2	R	0x03	TotWhImpPhA	Total Watt-hours Imported phase A	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40120	40121	2	R	0x03	TotWhImpPhB	Total Watt-hours Imported phase B	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40122	40123	2	R	0x03	TotWhImpPhC	Total Watt-hours Imported phase C	acc32	Wh	TotWh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
G_E_SF	**40123**	40124	40124	1	R	0x03	TotWh_SF	Real Energy scale factor	sunssf			auto-scaled on group `TotWh*`
		40125	40126	2	R	0x03	TotVAhExp	Total Apparent Energy Exported	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40127	40128	2	R	0x03	TotVAhExpPhA	Total VA-hours Exported phase A	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40129	40130	2	R	0x03	TotVAhExpPhB	Total VA-hours Exported phase B	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40131	40132	2	R	0x03	TotVAhExpPhC	Total VA-hours Exported phase C	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40133	40134	2	R	0x03	TotVAhImp	Total Apparent Energy Imported	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40135	40136	2	R	0x03	TotVAhImpPhA	Total VA-hours Imported phase A	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40137	40138	2	R	0x03	TotVAhImpPhB	Total VA-hours Imported phase B	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40139	40140	2	R	0x03	TotVAhImpPhC	Total VA-hours Imported phase C	acc32	VAh	TotVAh_SF	This data-point is supported/not-supported depending on the grid connection and/or used smart meter.
		40141	40141	1	R	0x03	TotVAh_SF	Apparent Energy scale factor	sunssf			auto-scaled on group `TotVAh*`
		40142	40143	2	R	0x03	TotVArhImpQ1	Total Reactive Energy Imported Quadrant 1	acc32	varh	TotVArh_SF	not supported
		40144	40145	2	R	0x03	TotVArhImpQ1PhA	Total VAr-hours Imported Q1 phase A	acc32	varh	TotVArh_SF	not supported
		40146	40147	2	R	0x03	TotVArhImpQ1PhB	Total VAr-hours Imported Q1 phase B	acc32	varh	TotVArh_SF	not supported
		40148	40149	2	R	0x03	TotVArhImpQ1PhC	Total VAr-hours Imported Q1 phase C	acc32	varh	TotVArh_SF	not supported
		40150	40151	2	R	0x03	TotVArhImpQ2	Total Reactive Power Imported Quadrant 2	acc32	varh	TotVArh_SF	not supported
		40152	40153	2	R	0x03	TotVArhImpQ2PhA	Total VAr-hours Imported Q2 phase A	acc32	varh	TotVArh_SF	not supported
		40154	40155	2	R	0x03	TotVArhImpQ2PhB	Total VAr-hours Imported Q2 phase B	acc32	varh	TotVArh_SF	not supported
		40156	40157	2	R	0x03	TotVArhImpQ2PhC	Total VAr-hours Imported Q2 phase C	acc32	varh	TotVArh_SF	not supported
		40158	40159	2	R	0x03	TotVArhExpQ3	Total Reactive Power Exported Quadrant 3	acc32	varh	TotVArh_SF	not supported
		40160	40161	2	R	0x03	TotVArhExpQ3PhA	Total VAr-hours Exported Q3 phase A	acc32	varh	TotVArh_SF	not supported
		40162	40163	2	R	0x03	TotVArhExpQ3PhB	Total VAr-hours Exported Q3 phase B	acc32	varh	TotVArh_SF	not supported
		40164	40165	2	R	0x03	TotVArhExpQ3PhC	Total VAr-hours Exported Q3 phase C	acc32	varh	TotVArh_SF	not supported
		40166	40167	2	R	0x03	TotVArhExpQ4	Total Reactive Power Exported Quadrant 4	acc32	varh	TotVArh_SF	not supported
		40168	40169	2	R	0x03	TotVArhExpQ4PhA	Total VAr-hours Exported Q4 Imported phase A	acc32	varh	TotVArh_SF	not supported
		40170	40171	2	R	0x03	TotVArhExpQ4PhB	Total VAr-hours Exported Q4 Imported phase B	acc32	varh	TotVArh_SF	not supported
		40172	40173	2	R	0x03	TotVArhExpQ4PhC	Total VAr-hours Exported Q4 Imported phase C	acc32	varh	TotVArh_SF	not supported
		40174	40174	1	R	0x03	TotVArh_SF	Reactive Energy scale factor	sunssf			not supported
		40175	40176	2	R	0x03	Evt	Meter Event Flags	bitfield32			currently hardcoded to zero

Start	End	Size	R/W	Functioncode	Name	Description	Type	Units	Scale Factor	Rangeof val
40177	40177	1	R	0x03	ID	Identifies this as End block	uint16			0xFFFF
40178	40178	1	R	0x03	L	Length of model block	uint16			0x0